

## **IMPROVED J-CHANNEL**

### **Background of the Invention**

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 60/413,212 filed September 24, 2002.

### **Field of the Invention**

[0002] This invention relates to an accessory for use when installing panel siding on buildings and more particularly to an improved J-channel for use in receiving vinyl siding panel portions therein.

### **Prior Art**

[0003] Vinyl siding has proven to be an economical and long lasting selection for exterior surfaces of buildings. More and more new homes presently utilize at least some vinyl siding on their exterior surfaces. Commercial buildings also are finding uses for vinyl siding. Furthermore, many older structures are often resurfaced with vinyl siding as an alternative to repainting.

[0004] When installing vinyl siding panels from top to bottom of the structure, normally a starting strip is placed along the bottom of the structure. A first panel is then locked into a lock in the starting strip and subsequent panels are locked into the next lower panel. The top portions of the panels are secured typically with nails in a nail hem which is located just above the lock utilized with the next higher panel to be connected thereto. The nail hem typically has a slot which allows side to side movement of the panel to allow for expansion and contraction.

[0005] Once the top of the structure is reached, installers typically locate an accessory known as a J-channel such as the one shown in Figure 1 to receive the topmost panel. The illustrated prior art J-channel 10 has a shorter outer face 12 and a longer inner face 14 which are connected

by bridge 16 to form a channel 18 therein, hence the name J-channel. Nail hems 20 are located along the inner face 14 so they are accessible by an installer to drive a nail therethrough to connect the J-channel 10 to a supporting structure such as a backing board or other appropriate location.

[0006] When the last panel 24 utilized before the J-channel 10 is to be installed, often it needs to be cut so that it fits within the J-channel 10. However, as can be seen in Figure 2, the top end 21 of a cut channel, illustrated as leg 22, may not form a tight fit when inserted into the J-channel 10 such as when cut in the V-shaped groove as shown.

[0007] The upper face 12 of the J-channel 10 prevents an installer from being able to secure the leg 22 of the panel 24 to the backer board (not shown) or other structure. During heavy winds it is possible, especially if the last panel 24 were cut too short, that air can get through the channel 18 and into void 26 to thereby disconnect buttock 28 from lock 30 and then blow the top panel 24 off the building. This is somewhat unsightly.

[0008] In order to overcome this problem, installers have traditionally proceeded in one of two ways with furring strips which are a wooden or steel framing material typically rectangular in shape having one inch by three inch cross sections and used to provide an even nailing base. To “fur” a surface means to apply these strips.

[0009] Figures 3 and 4 show the two common prior art ways of utilizing furring strips 32. In Figure 3, the furring strip 32 is installed to prevent panel detachment by preventing air from getting into channel 18 around the end 21 of panel 24 and into void 26. However, the furring strip 32 is not resilient and getting the top portion 22 intermediate the furring strip the top surface 34 of furring strip 32 can be challenging especially when trying to get the buttock (not shown in Figure 3) to fit within the lock (not shown in Figure 3) of the lower panel. Additionally, the

installation of the furring strip 32 requires an additional step by the installer of installing the furring strip 32.

[00010] In Figure 4, the panel 24 is cut on the flat surface 36 instead of along the V channel or leg 22 as shown in Figure 3. In this installation the furring strip 32 is installed away from the upper face 12 of the J-channel 10. Under sill trim 38 is utilized to catch the panel 24 as shown. Not only does this step require the installation of furring strips 32, but also the necessary time and expense of installing under sill trim 38 as well. Snap lock lugs 40 are punched into flat surface 36 which cooperate with under sill trim 38 to prevent the panel 24 from pulling out of the under sill trim 38, but nothing secures the under sill trim 38 to the J-channel 10.

[00011] Many installers elect to cut corners and skip the step of installing furring strips 32. Additionally, the installation of furring strips 32, especially with the under sill trim 38, results in additional expense to the installer and thus, to the homeowner as well.

[00012] Several attempts have been made by at least one Texas individual to provide a better fit of siding panels in trim strips. U.S. Patent Nos. 5,634,314 and 5,53,791 relate to clips which connect to a top piece of siding which are described as being able to assist in retaining a siding panel in a trim strip. These clips appear to be attached to the siding at spaced apart locations. Furthermore, the siding panel may still need to be cut to rather close tolerances as shown in Figure 4 of U.S. Patent No. 5,634,314 so that the angled leg 14 of the clip contacts the inwardly turned edge 84 of the trim piece. If siding panel 20 is too short, the leg 14 would be located below the inwardly turned edge 84 and the clip would have absolutely no effect on retaining the siding in the trim piece. If the siding panel is too long, the leg 14 might be spaced from the edge 84 such that sufficient play could exist which could create various problems for the home owner.

[00013] Accordingly, a need exists to provide an improved J-channel which eliminates the need for the installation of furring strips and possibly under sill trim as well.

### **Summary of the Invention**

[00014] Accordingly, an object of the present invention is to provide an improved J-channel for use in installing vinyl siding panels.

[00015] Another object of the present invention is to provide a J-channel which captures and/or locks an inserted panel therein.

[00016] Another object of the present invention is to provide a retaining system for use with existing J-channel to capture inserted panels therein.

[00017] Accordingly, a J-channel having an outer face spaced from an inner face by a bridge to define a channel therein is also equipped with a retainer having an engagement tab which preferably contacts one of the outer face and a lip downwardly extending from the outer face at a curve. The engagement tab is spring biased against the outer face or lip by a resilient shoulder which is preferably connected to the inner face of the J-channel. It is preferred that the engagement tab and lip meet at a "V" so that an inserted panel is assisted in being driven between the two members. The inserted panel is preferably punched with snap lock lugs so that the snap lock lugs engage one of the lip and/or engagement tab when properly located intermediate the upper face and engagement tab.

### **Brief Description of the Drawings**

[00018] The particular features and advantages of the invention as well as other objects will become apparent from the following description taken in connection with the accompanying drawings in which:

Figure 1 is a top elevational view of a prior art J-channel;

Figure 2 is a side cross-sectional view of a top panel locked to a lower panel with the top portion of the top panel located in a J-channel as is commonly performed in the prior art;

Figure 3 shows a top panel installed in a J-channel as has been done in the prior art;

Figure 4 shows an alternative method of installing a top panel in a J-channel as is known in the prior art;

Figure 5 shows a J-channel equipped with a retainer in accordance with an alternatively preferred embodiment of the present invention;

Figure 6 shows an installed upper panel connected to a lower panel as well as to the J-channel utilizing a preferred embodiment of the J-channel of the present invention; and

Figure 7 shows snap lock lugs punched into a panel using a snap lock punch as is known in the prior art.

#### **Detailed Description of the Drawings**

[00019] Figures 5 and 6 show the improved J-channel 50 of the present invention for use with siding products such as vinyl, aluminum, or other panel siding product. Of the improved J-channel 50 has outer face 52 spaced from inner face 54 by bridge 56 to create channel 58 therein. The upper face 52 preferably has a lip 60 connected to the upper face 52 by curve 62. This lip 60 is illustrated oriented toward the bridge 56 in this embodiment. Other designs may or may not utilize alternatively constructed lips 60. The J-channel 50 also includes a retainer 64 which is utilized to capture an uppermost panel 66 relative to the lip 60 and/or outer face 52 of the J-channel 50. Although leg 68 is shown captured by the retainer 64 relative to the outer face 52 in Figure 6, the V-slant 70, the top face 72 of panel 66, or other appropriate panel portion could also be captured in a similar manner.

**[00020]** The retainer **64** illustrated in Figure 5 is an alternatively preferred embodiment and includes an engagement tab **74** which is biased toward and preferably against one of the outer face **52** and/or the lip **60** of the J-channel **50**. The biasing is accomplished through the utilization of shoulder **76** connected by curve **78,80** to wall member **82**. The shoulder when combined with the curve **78,80** provides resiliency to the engagement tab **74** so that the engagement tab **74** is preferably displaceable towards the inner face **54** so that a panel **66** may be slid intermediately engagement tab **74** and the outer face **52** of the J-channel **50**. Additionally, the outer face **52** may be somewhat resilient relative to the engagement tab **74** so that the outer face **52** and/or lip **60** is resiliently disposed relative to the engagement tab **74**. The retainer **64** can be formed where the engagement tab **74** would otherwise be above the outer face **52**, however, after formation, the tab **74** placed below the upper face **52**.

**[00021]** The wall member **82** may or may not be a portion of the inner face **54**. Furthermore, the nails **84** which secures the J-channel **50** to a backing board (not shown) may also be utilized to secure the wall member **82** to one of the backing board (not shown) and/or the inner face **54** of the J-channel **50**. In some embodiments, the inner wall **80** may be integrally connected to the inner face **54**.

**[00022]** The shoulder **76** is preferably a spanning member which is utilized along the curves **78,80** to bring to the engagement tab **74** against the lip **60** and/or upper surface **52**. The engagement tab **74** and at least a portion of the wall member **82** may be substantially parallel as illustrated. The shoulder **76** may be substantially perpendicular to one of the engagement tab **74** or wall member **82** or downwardly angled from the wall member **82** and acutely angled relative to both the wall member **82** and engagement tab **74** as illustrated. Alternatively, the shoulder **76** may be upwardly angled relative to the engagement tab **74** so that it is obtusely angled relative to

the engagement tab 74 or the outer face 52 of the J-channel 50. In some embodiments the shoulder 76 and engagement tab 74 may be integrally connected and difficult to distinguish where one begins and the other ends.

[00023] The outer face 52 of the J-channel is normally parallel to the inner face 54 which provides a pleasing aesthetic appearance. The engagement tab 74 is preferably located along the engagement tabs plane 86 which is angled relative to face plane 88 which contains the outer face 52. As illustrated, the angle between the face plane 88 and the engagement tab plane 86 is acutely angled and preferably less than about 45°, more preferably less than about 30°, less than about 10 ° or about 5° as illustrated.

[00024] When the curve 62 connects with lip 60 as illustrated in Figure 5, the lip 60 and/or curve 62 and the engagement tab 74 form a “V” 90 which is believed to assist in placing the panel 66 as shown in Figure 6 so that the plank 66 is captured intermediate the engagement tab 74 in the lip 60. Since at least one of the engagement tabs 74, the lip 60, and/or outer face 52 is resilient, the appropriate member 52,60,74 is displaced with the insertion of the plank 66 as shown in Figure 6. The panel end 92 may be pushed against the “V” 90 to install the panel 66 in the J-channel 50. In the preferred embodiment, the engagement tab 74 is inwardly displaced during the installation of the panel 66 as shown in Figure 6. The shoulder 76 and curves 78,80 provide a spring to resiliently bias the engagement tab 74 against the panel 66 and the panel 66 against at least one of the lip 60 and outer face 52.

[00025] In Figure 6, the presently preferred embodiment is shown with shoulder 77 upwardly angled relative to wall member 82. This assists in forming V 90 for installing the panel 66. Angle illustrated is about 45° over angle such as 30 to 60° could also be utilized for the shoulder 77.

[00026] The upper portion 92 of panel 66 is preferably punched with snap lock lugs 94 as illustrated in Figure 7 as is known in the art. The lugs may be outwardly oriented as shown in Figure 6 so that they cooperate with the lip 60 to prevent the panel 66 from being downwardly pulled from the J-channel 50. Alternatively, if no lip is present on the J-channel embodiment, the lugs 94 may be inwardly oriented towards the engagement tab 74 so that they overlap end 96 of the engagement tab 74. The end 96 of the engagement tab 74 preferably terminates at a predetermined distance away from bridge 56.

[00027] While the retainer 64 of the preferred embodiment is somewhat "S" or "Z" shaped, other configurations may also be utilized to provide at least some resiliency to the engagement tab 74 to locate and bias the tab 74 towards the outer surface 52 of J-channel 50.

[00028] Numerous alterations of the structure herein disclosed will suggest themselves to those skilled in the art. However, it is to be understood that the present disclosure relates to the preferred embodiment of the invention which is for purposes of illustration only and not to be construed as a limitation of the invention. All such modifications which do not depart from the spirit of the invention are intended to be included within the scope of the appended claims.

[00029] Having thus set forth the nature of the invention, what is claimed herein is: